

## EDITORIAL COMMENT†

RUPTURED INTERVERTEBRAL DISC:  
AN UNFINISHED PROBLEM

Recently a wave of enthusiasm favoring laminectomy for severe sciatic pain has swept the country. Indeed, one well-known surgeon has said that ruptured intervertebral disc was a common cause of sciatic pain.<sup>1</sup> Excellent results have been described following laminectomy for ruptured intervertebral disc.<sup>2</sup> It is well to review several of the procedures that have been performed in the past for sciatic pain, and to append the reported percentage of good results from each procedure.

Procedure	Excellent or Good Results (Per Cent)	Author
Ober fasciotomy	75	Smith <sup>3</sup>
Lumbosacral fusion	72	Ghormley and Wesson <sup>4</sup>
Epineural sacral injection	66	Whitaker <sup>5</sup>
Heat and electrotherapy	90	Schmidt and Smith <sup>6</sup>
Intravenous injection of sodium salicylate	100	Sutton <sup>7</sup>
Heyman fasciotomy	76	Heyman <sup>8</sup>
Manipulation	87	Freeman <sup>9</sup>
Novocaine injection to sacroiliac joint	60	Haldeman and Soto-Hall <sup>10</sup>

Horowitz<sup>11</sup> has shown that in a series of twenty-five cadavers, posterior herniation of the intervertebral disc into the spinal canal occurred in nine cases. On reviewing the histories of these cases, Horowitz found no complaint of sciatica and that backache was an infrequent and minor symptom. Schmorl<sup>12</sup> had previously pointed out the frequency of intervertebral disc variations in cadavers.

Despite the evident relief afforded many patients by excision of a ruptured nucleus pulposus, some

patients are unable or unwilling to resume their work following the procedure.<sup>13</sup>

One must realize that many structures of the back are altered by a laminectomy. Muscles and fasciae are severed and manipulated with retractors. Articular facets may be excised. It is possible that in some "cured" cases relief from pain is afforded by these procedures rather than by enucleation of the ruptured intervertebral disc. Moreover, Love<sup>2</sup> admits that pressure from a ruptured disc may subside, and thus a patient cure himself. Furthermore, the mortality following laminectomy by excellent surgeons for disc and ligamentum flavum lesions may be as high as 5 per cent.<sup>14</sup>

From the statements above one is led to the conclusion that the intervertebral disc lesion is not a closed chapter in our knowledge of sciatic pain.

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## LACTATION IMMUNITY

Some of the present confusion, in reference to the alleged rôle of colostrum in the transfer of specific immunity to infants, may be dissipated by the immunogenetic studies recently reported by Schneider and Szathmáry<sup>1</sup> of Budapest, Hungary.

From the immunogenetic point of view, domestic animals may be divided into four main groups, depending upon the type of placentation. In horses, swine, cattle, and other animals of Group I, the maternal and fetal circulations are separated by seven distinct layers of tissue through which antibody transfer must take place. Both the maternal epithelium and the chorionic epithelium are intact in this group, the two epitheliums being separated by a thin layer of colloidal secretions. In the sheep and other animals of Group II, the uterine epithelium and the layer of secretion are both absent, the chorionic epithelium being in direct contact with maternal connective tissue. In the dog and other animals of Group III, this intervening connective tissue layer is also absent, the chorionic epithelium coming in direct contact with the outer walls of the maternal capillaries. In man, anthropoid apes, rabbits, and other members of Group IV, even this capillary endothelium is lacking, the chorionic epithelium coming in direct contact with the maternal blood.

One would expect from these differences that transplacental transmission of antibodies would be least effective in Group I, and that the new-born of this group would have to rely mainly on lactic transfer of specific antibodies. Prenatal transfer of antibodies would, presumably, become more effective as one passes to the higher groups, the most effective transfer presumably taking place in members of the fourth group. In order to confirm these deductions, the Budapest clinicians injected

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1 Love, J. Grafton: Proc. Staff Meet., Mayo Clin., 14:50-800 (Dec. 13), 1939.

2 Love, J. Grafton: Protruded Intervertebral Discs, J. A. M. A., 113:2029-2035 (Dec. 2), 1939.

3 Smith, A. D.: Results of Fasciotomy for Relief of Sciatic Pain, J. Bone & Joint Surg., 19:765-769 (July), 1937.

4 Ghormley, R. K., and Wesson, H. R.: Surgical Treatment of Low Back Pain and Sciatica, South. M. J., 30:806-811 (Aug.), 1937.

5 Whitaker, P. F.: Treatment of Sciatica by Epidural Sacral Injection, Virginia M. Monthly, 60:489-491 (Nov.), 1935.

6 Schmidt, W. H., and Smith, J. L.: Sciatic Syndrome and Its Management, Arch. Phys. Therapy, 20:494-500 (Aug.), 1939.

7 Sutton, H. B.: Intravenous Injection of Sodium Salts in Sciatica, Lancet, 237:1168 (Dec. 2), 1939.

8 Heyman, C. H.: Posterior Fasciotomy in Treatment of Back Pain, J. Bone & Joint Surg., 20:851-859 (Oct.), 1938.

9 Freeman: Remarks and Statistical Analysis of One Hundred and Forty Cases of Sciatica Treated by the Method of Stretching and Immobilization, Orthopedic Research Seminar Notes of University of Iowa, Series IX, 1935, Section C, page 48.

10 Haldeman, K. O., and Soto-Hall, R.: Diagnosis and Treatment of Sacro-iliac Conditions by Injection of Procaine (novocain), J. Bone & Joint Surg., 20:675-685 (July), 1938.

11 Horowitz, Thomas: Lesions of the Intervertebral Disc and Ligamentum Flavum of the Lumbar Vertebrae, Surgery, 6:418-422 (Sept.), 1939.

12 Schmorl, G.: Quoted by Horowitz, T. See No. 11.

13 Willems, J. D.: Discussion of Intervertebral Disc Lesions, J. A. M. A., 114:2034 (Dec. 2), 1939.

14 Bradford, F. K., and Spurling, R. G.: Intraspinal Causes of Low Back and Sciatic Pain, Surg. Gynec. & Obst., 69:455 (Oct.), 1939.

1 Schneider, L., and Szathmáry, J., Ztschr. f. Immunitätsforsch., 94: 458, 465, 1938; 95: 169, 177, 189, 465, 1939.

pregnant or prepregnant members of each group with two antigens, *B. typhosus* and diphtheria toxoid. Serum, colostrum, and milk from these immunized animals were titrated for typhoid agglutinins and diphtheria antitoxin shortly before delivery. A parallel titration was made of the serum of the young, both at the time of birth and after normal colostric or milk feedings.

In animals of Group I (calves) the antibody titers of both maternal blood and colostrum were high. The young of this group were born with practically no trace of this acquired specific immunity. A rapid increase in antibody titer took place in new-born blood, however, following the first colostric feeding. In Group II (sheep) an appreciable trace of maternal antibodies was demonstrable in new-born serum, increasing sharply after the first colostric feeding. In Group III (dogs) a 33 per cent transfer of maternal antibodies was demonstrable in new-born blood, with a 100 per cent increase in this fetal titer after colostric feeding.

Of direct clinical interest are their data from Group IV, which has the same type of placentation as man. Here the antibody titer of the new-born (rabbits), was very nearly identical with that of the mother. In place of an increase in fetal titer a 10 per cent drop in new-born titer took place as a result of the first colostric feeding. The general conclusion from these data of the Hungarian investigators is that in animals of Group IV, (including man), the transfer of specific antibodies from mother to young is solely by the placental route, lactation immunity being nonoperative in this group.

From the theoretic point of view the apparent total lack of absorption of colostric antibodies from the gastro-intestinal tract in rabbits is the most suggestive part of this contribution from Budapest by the Hungarian investigators. The reason for this apparent nonabsorption has not been determined. A 100 per cent absorption takes place in calves. If, as they assume, a similar lack of antibody absorption from the gastro-intestinal tract takes place in man, many of the current arguments in favor of breast-feeding of infants and arguments against pasteurization of milk will have to be revised.

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*Adult Human Pulse Rate Is Variable.*—"The adult human pulse rate is considerably more variable than many persons think," *Hygeia, The Health Magazine*, declares.

"Extensive and exact studies of the measurement of the heart rate of persons in New York City have shown pulse rates ranging from fifty-five to 120 beats per minute in a healthy person in a normal twenty-four hour cycle."

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*Chronic Nonspecific Pulmonary Disease* is complex and confusing both clinically and anatomically. An increase in the density of the pulmonary markings, ring shadows, the displacement of organs or chronic pneumonia should arouse the suspicion of bronchiectasis.—Paul Andrus, M.D., *American Review of Tuberculosis*, January, 1940.

## ORIGINAL ARTICLES

### SYPHILIS: ITS TREATMENT IN THE TUBERCULOUS PATIENT\*

By WALTER BECKH, M. D.  
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FOR many years the frequent coexistence of the two most prevalent chronic infectious diseases, namely, syphilis and tuberculosis, has raised numerous issues. Since the advent of Thomas Parran as Surgeon-General of the United States, greater efforts are being directed toward the eradication of syphilis, and this disease is now beginning to receive the attention, from the public health point of view, which it deserves. It appears timely, therefore, to review some of the problems involved in the treatment of the patient who has pulmonary tuberculosis, but who is also ill with syphilis.

#### GENERAL CONSIDERATIONS

Not only tuberculosis, but also syphilis is one of the greatest killers of mankind. It is somewhat surprising, therefore, that in the past the discovery of syphilis in a tuberculous patient has not aroused the concern it merited when the health of the patient was considered from the long point of view. This has been due, in part at least, to the fact that the patient with tuberculosis has usually been confined to an institution staffed by physicians primarily interested in tuberculosis. The physician in the sanatorium is confronted with a situation in which he has to deal with two disease entities, the tuberculosis usually being the more overt one of the two. It is little to be wondered, therefore, that the tuberculous infection has usually been considered of primary importance. This is, however, not necessarily so, because, as the success of our therapeutic measures against the ravages of the tubercle bacillus is increasingly prolonging the life of the patient with tuberculosis, the problem of organic disability and dysfunction due to the late effects of syphilis is assuming an increasingly important rôle. We know that certain forms of syphilis, such as paresis and cardiovascular syphilis, are more surely fatal than even exudative tuberculosis, and tabes dorsalis and other forms of neurosyphilis are equally more surely productive of chronic invalidism than tuberculosis. If to these forms of frankly grave syphilis we add other potentially serious forms, such as asymptomatic neurosyphilis, the array of syphilitic conditions which may kill the patient after he has been cured of his tuberculosis becomes quite formidable. The greater number of patients in tuberculosis institutions are under the age of forty. In syphilis, the eventual serious outcome, however, usually does not become manifest until after the fourth decade of life. Therefore, if we give adequate antisyphilitic treatment to the patient at a time when his syphilitic infection has not yet caused irreparable damage to vital organs,

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